3.5 KVA LINE VOLT ADJ & STEP

Model 920B

KEPCO LAB

3.5 KVA

LINE VOLTAGE ADJUSTER AND STEPPER

MODEL 920B

SERIAL .....

KEPCO LABORATORIES, INC.
131 - 38 Sanford Avenue
Flushing 55, New York

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3.5 KVA

LINE VOLTAGE ADJUSTER AND STEPPER

MODEL 920B

The Line Voltage Adjuster provides for adjusting and stepping the line voltage from 95-135 V AC for any fixed input voltage in the range 95-135 V AC. The output capacity of this unit is 3.5 KVA for input line voltage above 114 V. This output capacity decreases linearly to 3 KVA at an input line voltage of 95 V. The output Step Voltage can be adjusted from 0-40 V.

SPECIFICATIONS:

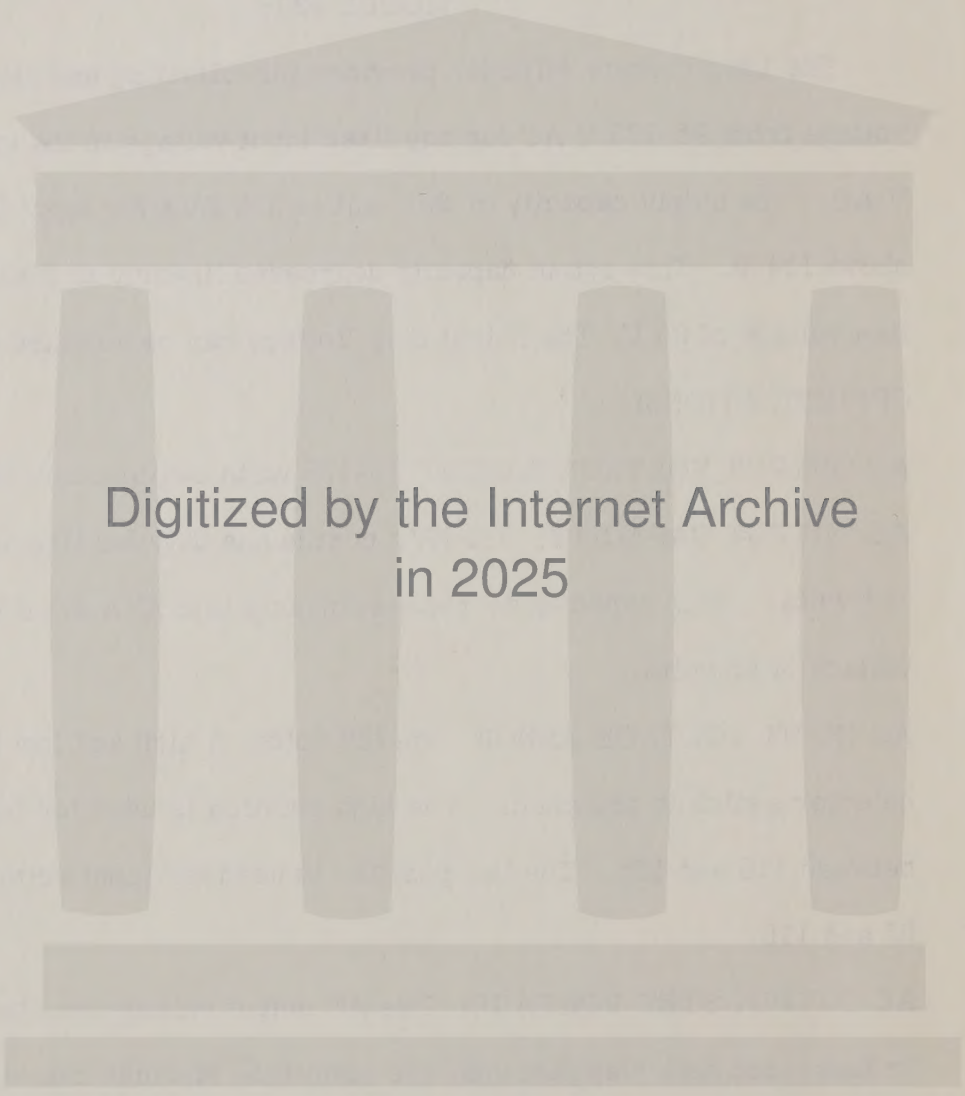
AC OUTPUT VOLTAGE RANGE: 95-135 volts continuously variable.

AC OUTPUT CAPACITY: 3.5 KVA continuous duty for line voltage above 114 volts. This capacity decreases linearly to 3 KVA at an input line voltage of 95 volts.

AC INPUT VOLTAGE RANGE: 95-135 volts. A high and low input voltage selector switch is provided. The high position is used for input voltages between 115 and 135. The low position is used for input voltages between 95 and 115.

AC OUTPUT STEP VOLTAGE: The AC output voltage may be decreased or increased as a step function, the amplitude of which can be set from 0-40 volts.

Example: The AC output voltage is set at 130 volts and the Step voltage is set for 30 volts. When the Step voltage is applied the output voltage is reduced to 100 volts.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The output Step voltage may be changed:

1. Manually, by means of a switch located on the front panel.
2. Remotely, by means of a SPST switch.
3. Automatically, 10 seconds on and 10 seconds off, by means of a built-in timing switch.

WAVEFORM DISTORTION: The waveform distortion introduced by this unit is negligible.

EFFICIENCY: Under all operating conditions the efficiency is greater than 96%.

POWER REQUIREMENTS: 95-135 volts, 50-65 cycles.

METERS: Voltmeter: 0-150 volts AC, Weston 4" rectangular, 2% accuracy.

Ammeter: Three ranges: 7.5 amperes, 15 amperes, and 37.5 amperes. Weston 4" rectangular, 2% accuracy.

CONTROLS: Power on-off circuit breaker.

Line voltage control.

Step voltage controls, high limit and low limit.

High-Low line voltage selector switch.

Step voltage selector switch for automatic, manual or remote control of the Step voltage.

Manual on-off Step voltage switch; three position - high, momentary low, and fixed low.

OVERLOAD PROTECTION: Input 35 ampere circuit breaker; line voltage control fuse; high and low Step voltage control fuses.

OUTPUT TERMINATIONS: Three output sockets mounted on the rear apron of the chassis.

PHYSICAL SPECIFICATIONS: This unit is designed for standard relay rack mounting or bench use. Height 12-1/4", width 19", depth 17". Panel height 12-1/4", width 19". Panel color Kepco standard gray hammertone.

OPERATING INSTRUCTIONS: The Kepco Model 920B Line Voltage Adjuster and Stepper is shipped without any internal packing material and may be put into operation immediately.

OPERATING PROCEDURE:

1. Wire the input connector to the source of power. The two conductor cable used for this purpose should have #8 wire if the full capacity of this unit is to be utilized.

2. Turn the LINE ADJUST control knob completely counter-clockwise. Turn the LOW STEP control completely clockwise. Turn the HIGH STEP control completely counter-clockwise.

3. Set the Ammeter Range switch to 35 amperes.

4. For incoming line voltage between 115 and 135 volts, place the LINE ADJUST range switch in the 115-135 volts position. For incoming line voltage between 95-115 volts, place the LINE ADJUST range switch in the 95-115 volts position.

5. Set the STEP mode of operation switch in the MAN./REMOTE position. Set the manual HIGH-LOW STEP switch in the HIGH position (middle position).

6. Turn on the LINE circuit breaker. Turn the LINE ADJUST control until the voltmeter reads 115 volts; clockwise rotation increases the voltage.

7. Turn the HIGH STEP control to the desired maximum voltage; clockwise rotation increases the voltage.

8. Set the HIGH-LOW STEP switch in the FIXED LOW position. Turn the LOW STEP control until the desired low voltage is reached; counter-clockwise rotation reduces the voltage.

9. For momentary stepping of the voltage from the high to the low limit, set the STEP mode of operation switch in the MAN./REMOTE position. Set the HIGH-LOW STEP switch in the HIGH position. Place the HIGH-LOW STEP switch in the MOM. LOW position. Releasing pressure on the HIGH-LOW STEP switch returns the voltage to the HIGH setting.

10. For automatic stepping of the voltage, place the HIGH-LOW STEP switch in the HIGH position. Place the STEP mode of operation switch in the AUTO. position. The voltage will then be automatically stepped from the high limit to the low limit, 10 seconds in the high voltage position followed by 10 seconds in the low voltage position.

The on-off interval can be adjusted by adjusting the automatic timer cam. The automatic on-off switching interval is fixed at 20 seconds. The cam may be adjusted so that the timing interval may be adjusted through the range 1 second ON, 19 seconds OFF; to the other extreme 19 seconds ON and 1 second OFF. The timer is located on the top rear of the chassis and is covered by a dust cover.

11. For remote stepping of the output voltage, connect a single pole-single throw switch to the Jones Connector P-304 across Pins #1 and #4. Set the STEP mode of operation switch in the MAN./REMOTE position. Set the HIGH-LOW STEP switch in the HIGH position. Closing the remotely located single pole-single throw switch will step the voltage from the high setting to the low setting.

12. The Line Voltage Adjuster and Stepper may be used for adjusting the line voltage continuously. Set the HIGH-LOW STEP switch in the HIGH position and set the LINE ADJUST control for minimum voltage with the HIGH STEP control turned completely counter-clockwise. Turn the HIGH STEP control clockwise to increase the voltage. The approximate voltage adjust range is 20-25 volts depending upon the input line voltage.

MAINTENANCE: The components of the Model 920B Line Voltage Adjuster and Stepper have been selected and tested to provide long and trouble free operating life. The only service necessary should be the cleaning of the heavy-duty relay contacts after several million operations. The relay contacts have been set up for closing and opening in special sequence and should not be tampered with. This relay is enclosed by a dust cover located on top of the chassis at the rear of the unit. This may be removed by removing the outer screen from the housing and then removing the four screws holding the dust cover to the chassis.

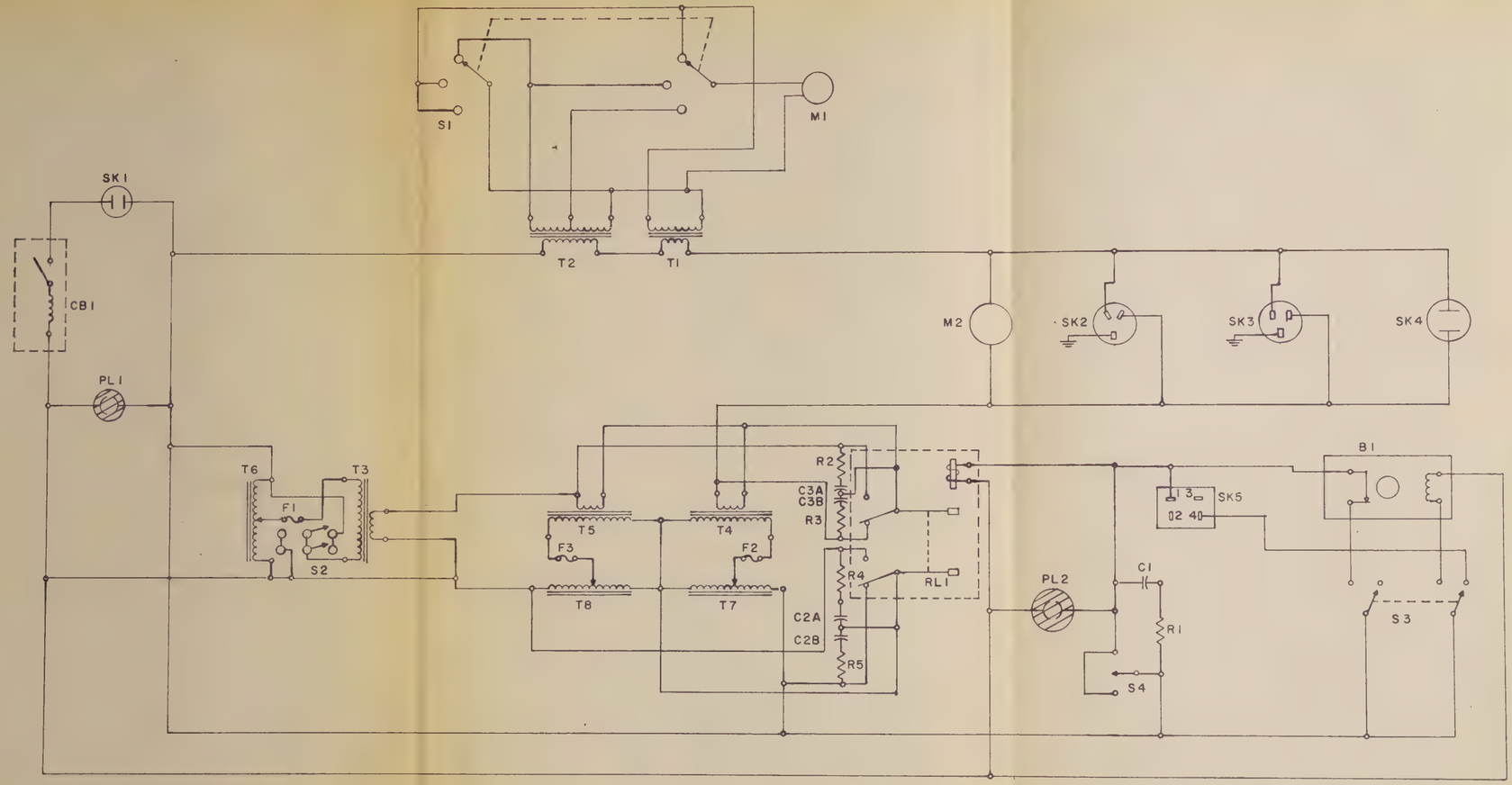
REPAIRS: Should any trouble develop in the instrument, it may be serviced with the aid of the schematic diagram. Major repairs, however, are usually handled by the factory.

Under no circumstances should the instrument be returned to the factory without proper authorization and shipping instructions. In any correspondence with the factory concerning repairs, the type and serial number of the instrument must be given together with a description of the trouble encountered.

PARTS LIST - MODEL 920B

DRAWING S-920B-01

B1	- Timer (Adj. on-off interval; total on-off interval 20 sec.)		
C1	- 2x1	MF	600 WV
C2	- 2x1	MF	600 WV
C3	- 0.5	MF	600 WV
CB1	- Circuit Breaker, 35 Amp.		
F1	- 7 Amp. Fuse Slow Blow		
F2	- 7 Amp. Fuse Slow Blow		
F3	- 7 Amp. Fuse Slow Blow		
M1	- Meter, three range (with external current transformers)		
M2	- Meter, 0-150 V AC		
PL1	- Neon Pilot Light NE-51		
PL2	- Neon Pilot Light NE-51		
R1 thru R5	- 50	Ohm	5 watt WW
RL1	- DPDT Relay (Contacts have special sequencing for opening and closing)		
S1	- 2P3P Rotary Switch		
S2	- DPDT Switch		
S3	- DPDT Switch		
S4	- SPDT Switch (Momentary On; On; Off)		
SK1	- Jones P-502-DB		
SK2	- Hubbell #7733		
SK3	- Hubbell #5284		
SK4	- Jones S-502-DB		
SK5	- Jones S-304-AB		
T1	- Kepco #100-926		
T2	- Kepco #100-927		
T3	- Kepco #100-924		
T4	- Kepco #100-925		
T5	- Kepco #100-925		
T6	- Powerstat, Type 116U		
T7	- Powerstat, Type 116U		
T8	- Powerstat, Type 116U		



KEPCO LABORATORIES

FLUSHING NEW YORK

ITEM: LINE VOLTAGE ADJUSTER AND STEPPER	DES.	GROUP
	APPD.	POCKET
	DFTM W.V.D.	FOLDER
MODEL 9208	CHKD.	ORIGINALS
DWG NO S-9208-01	DATE 5-13-57	SHEET OF

B-587

Kepco

*packaged power

TRANSISTORIZED
VACUUM TUBE TYPE
MAGNETIC TUBELESS

*VOLTAGE REGULATED POWER SUPPLIES

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TRANSISTORIZED

*VOLTAGE REGULATED POWER SUPPLIES

Model	DC Output Volts	DC Output Amps.	Output Impedance Ohms DC-1 KC	Output Impedance Ohms 1 KC-100 KC	Rack Mount W	Rack Mount H	Rack Mount D
SC-32-0.5	0-32	0-0.5	0.02	0.2	19"	3½"	13"
SC-32-1	0-32	0-1	0.01	0.1	19"	3½"	13"
SC-32-1.5	0-32	0-1.5	0.01	0.1	19"	3½"	13"
2SC-32-1.5	0-32	0-1.5	0.01	0.1	19"	7"	13"
DUAL OUTPUT	0-32	0-1.5	0.01	0.1			
SC-32-2.5	0-32	0-2.5	0.01	0.1	19"	3½"	13"
SC-32-5	0-32	0-5	0.005	0.05	19"	5¼"	13"
SC-32-10	0-32	0-10	0.001	0.01	19"	8¾"	13"
SC-32-15	0-32	0-15	0.001	0.01	19"	10½"	13"
SC-60-2	0-60	0-2	0.01	0.1	19"	5¼"	13"
SC-60-5	0-60	0-5	0.005	0.05	19"	8¾"	13"
2SC-100-0.2	0-100	0-0.2	0.1	1.0	19"	5¼"	13"
DUAL OUTPUT	0-100	0-0.2	0.1	1.0			
SC-150-1	0-150	0-1	0.05	0.5	19"	5¼"	13"
SC-300-1	0-300	0-1	0.1	1.0	19"	8¾"	13"

Pat. Pend.

0.01% REGULATION and STABILITY

- **Tubeless**
- **Transistorized**
- **Short circuit protected**
- **REGULATION:** 0.01% for line changes 105-125 volts at any output voltage in range 0 to maximum.

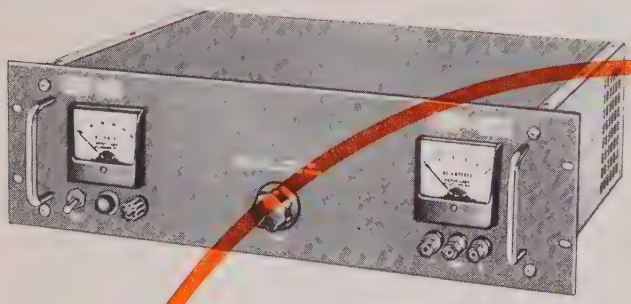
  0.01% or 0.002 volt for load changes 0 to maximum (whichever is greater) at any output voltage in the range 0 to maximum.
- **RIPPLE:** 1 mv. RMS.
- **RECOVERY TIME:** 50 microseconds.
- **STABILITY:** (for 8 hours) 0.01% or 0.002 volt (whichever is greater).
- **AMBIENT OPERATING TEMPERATURE:** 50°C maximum. Over-temperture protection provided. Unit turns off when over-temperature occurs. Power-on-off switch on front panel resets unit.

- **TEMPERATURE COEFFICIENT:** Output voltage changes less than 0.01% per °C.
- **SHORT CIRCUIT PROTECTION:** No fuses, circuit breakers or relays! Designed to operate continuously into a short circuit. Returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.
- **OVER-CURRENT CONTROL:** Can be set from 0 to 120% of full load. Current is limited to preset value for any load including short circuit.
- **REMOTE PROGRAMMING** at approximately 300 ohms per volt is provided. 1000 ohms per volt available on special order. Remote programming allows mounting a voltage control at a remote point. Programmable models are — SC-32-0.5, SC-32-1, SC-32-1.5, SC-32-2.5, SC-32-5, SC-60-2, 2SC-32-1.5, 2SC-100-0.2.
- **REMOTE ERROR SIGNAL SENSING** is provided to maintain stated regulation directly at the load.
- **CONSTANT CURRENT OPERATION:** These units can be set up for constant current operation without internal modification. Models SC-32-0.5, SC-32-1, SC-32-1.5, SC-32-2.5, SC-32-5, SC-60-2, 2SC-32-1.5, 2SC-100-0.2 can be set up for constant current operation.

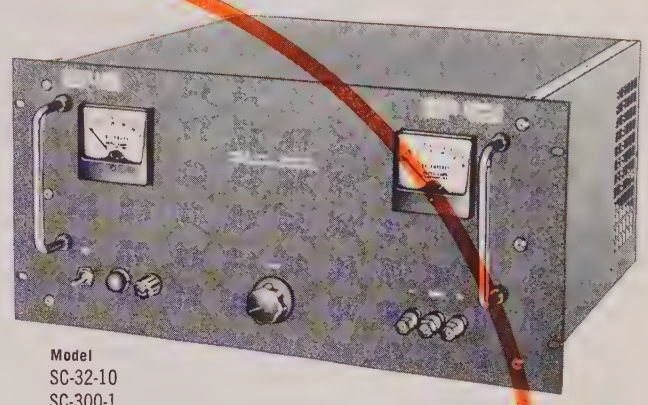
- **POWER REQUIREMENTS:** 105-125 volts, 50-65 cycles. 400 cycle units available.
- **OUTPUT TERMINATIONS:** DC terminals are clearly marked on the front panel. All terminals are isolated from the chassis. Either positive or negative terminal of each DC output may be grounded. A terminal is provided for connecting to the chassis. The DC terminals, the remote programming terminals and the remote error signal sensing terminals are brought out at the rear of the unit.
- **METERS:** Ammeter and Voltmeter included in above models.
- **CONTROLS:** Power-on-off switch, 10 turn voltage control, on front panel. Over-current control on rear of unit.
- **RESOLUTION:** 0.005% with 10 turn voltage control.
- Continuously Variable Output Voltage.
- No voltage switching.
- Suitable for square save pulsed loading.
- Either positive or negative can be grounded.
- Units can be series connected.
- High efficiency
- Low heat dissipation.
- Compact, light weight
- For bench or rack use.
- Color: Gray hammertone. (Special finishes available).

V. R. P. S.

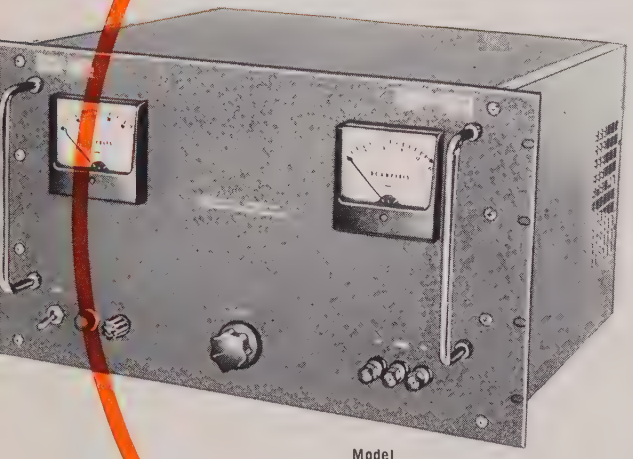
VOLTAGE REGULATED POWER SUPPLIES



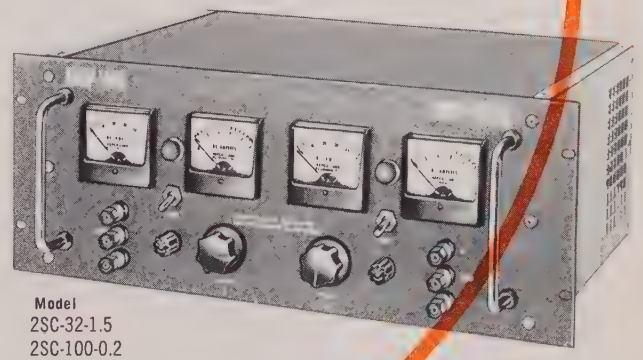
Model
SC-32-5
SC-150-1



Model
SC-32-10
SC-300-1



Model
SC-32-15



Model
2SC-32-1.5
2SC-100-0.2

Model
SC-32-0.5
SC-32-1
SC-32-1.5
SC-32-2.5

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VRPS*

0.1%
REGULATION and STABILITY

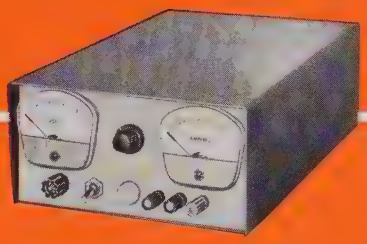
(TUBELESS)

TRANSISTORIZED

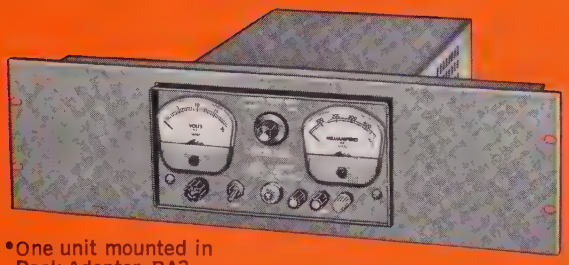
SHORT CIRCUIT PROTECTED

- **REGULATION:** 0.1% for line changes 105-125 volts at any output voltage in the range minimum to maximum.

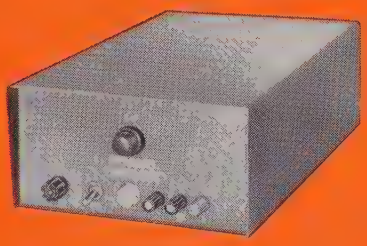
  0.1% or 0.003 volt for load changes 0 to maximum (whichever is greater) at any output voltage in the range minimum to maximum.
- **RIPPLE:** 1 mv. RMS.
- **RECOVERY TIME:** 50 microseconds.
- **STABILITY:** (for 8 hours) 0.1% or 0.003 volt (whichever is greater).
- **AMBIENT OPERATING TEMPERATURE:** 50°C maximum. Over-temperature protection provided. Unit turns off when over-temperature occurs. Power-on-off switch on front panel resets unit.
- **TEMPERATURE COEFFICIENT:** Output voltage changes less than 0.05% per °C.
- **SHORT CIRCUIT PROTECTION:** No fuses, circuit breakers or relays! Designed to operate continuously into a short circuit. Returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.
- **OVER-CURRENT CONTROL:** Can be set from 0 to 120% of full load. Current is limited to preset value for any load including short circuit.
- **REMOTE PROGRAMMING** at 1000 ohms per volt is provided. Remote programming allows mounting a voltage control at a remote point.
- **REMOTE ERROR SIGNAL SENSING** is provided to maintain stated regulation directly at load.
- **CONSTANT CURRENT OPERATION:** These units can be set up for constant current operation without internal modification.
- **POWER REQUIREMENTS:** 105-125 volts, 50-65 cycles. 400 cycle units available.
- **OUTPUT TERMINATIONS:** DC terminals are clearly marked on the front panel. All terminals are isolated from the chassis. Either positive or negative terminal of each DC output may be grounded. A terminal is provided for connecting to the chassis. The DC terminals, the remote programming terminals and the remote error signal sensing terminals are brought out at the rear of the unit.
- **CONTROLS:** Power-on-off switch, one turn voltage control, on front panel. Over-current control on rear of unit. Ten turn voltage control available on special order.
- Continuously Variable Output Voltage.
- No voltage switching.
- Suitable for square save pulsed loading.
- Either positive or negative can be grounded.
- Units can be series connected.
- High efficiency
- Low heat dissipation.
- Compact, light weight
- For bench or rack use.
- Color: Gray hammertone. (Special finishes available).



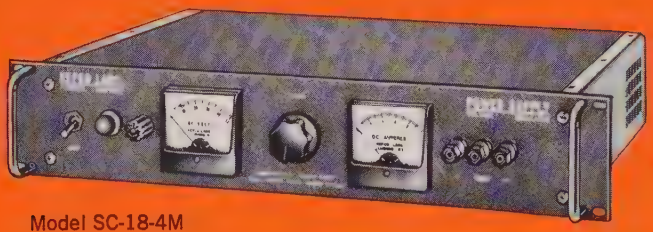
Model SC-18-1-M



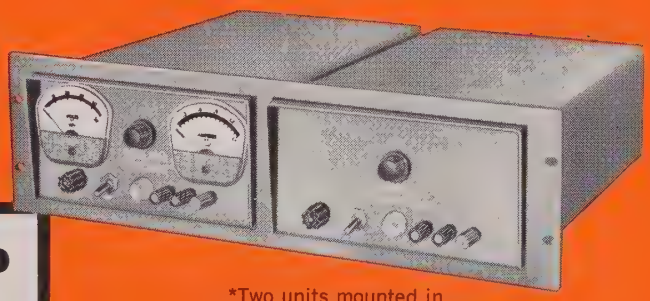
•One unit mounted in Rack Adapter RA3



Model SC-18-2



Model SC-18-4M



*Two units mounted in Rack Adapter RA-2

VOLTAGE REGULATED POWER SUPPLIES

MODEL	OUTPUT VOLTS DC	OUTPUT AMPERES DC	OUTPUT IMPEDANCE DC-1KC	OUTPUT IMPEDANCE 1KC-100KC	SIZE W	SIZE H	SIZE D
SC-18-0.5	0-18	0-0.5	.04	.4	8¼"	4 5/32"	13⅝"
SC-18-1	0-18	0-1	.02	.2	8¼"	4 5/32"	13⅝"
SC-18-2	0-18	0-2	.01	.1	8¼"	4 5/32"	13⅝"
SC-18-4	0-18	0-4	.005	.05	19"	3½"	13"
SC-36-0.5	0-36	0-0.5	.08	.8	8¼"	4 5/32"	13⅝"
SC-36-1	0-36	0-1	.04	.4	8¼"	4 5/32"	13⅝"
SC-36-2	0-36	0-2	.02	.2	19"	3½"	13"
SC-3672-0.5	36-72	0-0.5	.15	1.0	8¼"	4 5/32"	13⅝"
SC-3672-1	36-72	0-1	.08	.8	19"	3½"	13"

■ **ORDERING INFORMATION:**
Units without meters use model numbers indicated in table. To include meters add M to the Model No. (e.g. SC-18-1-M).

*Rack adapter for mounting any two 8¼" x 4 5/32" units is available. Model No. RA2 is 5¼" h x 19" w.

•Rack adapter for mounting any one 8¼" x 4 5/32" unit is available. Model No. RA3 is 5¼" h x 19" w,

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first in Performance Reliability and Quality

Kepco

new compact

VOLTAGE REGULATED TRANSISTORIZED POWER SUPPLIES

TRANSISTORIZED

Pat. Pending

0.02%

REGULATION and STABILITY

■ Tubeless ■ Short circuit protected

MODEL	DC OUTPUT VOLTS	DC OUTPUT AMPS.
PSC- 5-2	2.5- 7.5	2
PSC-10-2	7.5-12.5	2
PSC-15-2	12.5-17.5	2
PSC-20-2	17.5-22.5	2
PSC-28-1	22.5-32.5	1
PSC-38-1	32.5-42.5	1

REGULATION: 0.02% for line changes 105-125 volts at any output voltage in the range minimum to maximum. 0.02% or 0.002 volt for load changes minimum to maximum (whichever is greater) at any output voltage in the range minimum to maximum.

RIPPLE: 1 mv. RMS.

RECOVERY TIME: 50 microseconds.

IMPEDANCE: DC to 1KC, 0.01 ohms; 1KC to 100KC, 0.1 ohms.

STABILITY: (for 8 hours) 0.02% or 0.002 volt (whichever is greater).

OPERATING TEMPERATURE: Base plate temperature 50°C maximum. Over-temperature protection provided. Unit turns off when over-temperature occurs. Interrupting input power rests unit.

TEMPERATURE COEFFICIENT: Output voltage changes less than 0.01% per °C.

SHORT CIRCUIT PROTECTION: No fuses, circuit breakers or relays! Designed to operate coninuously into a short circuit. Returns instantly to operating voltage when overload is removed. Ideal for lighting lamps and charging capacitive loads.

OVER-CURRENT CONTROL: Can be set from 0 to 120% of full load. Current is limited to preset value for any load including short circuit.

REMOTE PROGRAMMING at approximately 1000 ohms per volt is provided. Remote programming allows mounting a voltage control at a remote point without removing the internal voltage control.

REMOTE ERROR SIGNAL SENSING is provided to maintain stated regulation directly at the load.

CONSTANT CURRENT OPERATION: These units can be set up for constant current operation without internal modification.

POWER REQUIREMENTS: 105-125 volts, 50-65 cycles. 400 cycle units available.

OUTPUT TERMINATIONS: DC terminals are clearly marked on the base plate. All terminals are isolated from the chassis. Either positive or negative terminal of each DC output may be grounded. A terminal is provided for connecting to the chassis. The remote programming terminals and the remote error signal sensing terminals are located inside the unit and are accessible by removing the cover. Wiring to these terminals is made through a hole in the base plate.

CONTROLS: 25 turn voltage control and single turn over-current control are located inside the unit. These controls are accessible by removing the cover.

- Continuously Variable Output Voltage. No voltage switching.
- Suitable for square wave pulsed loading.
- Either positive or negative can be grounded.
- Units can be series connected.
- High efficiency.
- Low heat dissipation.
- Compact, light weight.
- Size: 5" x 5" x 12"
- Color: Gray hammertone. (Special finishes available.)

TRANSISTORIZED

first in Performance Reliability and Quality

Kepco

transistorized DC to DC converters

Pat. Pending

These units are used in converting low voltage DC to high voltage DC for operating mobile and aircraft electronic equipment.

- **Tubeless**
- **Short circuit protected**

MODEL	DC Output Volts	DC Output Current	VA Max.	DC Input Volts	DC Input V Max.	Ripple RMS	Ripple P-P	Load Regulation	Efficiency
SC-325-100-6	325	100 MA.	33	6	7.0	1%	6%	10%	75%
SC-325-200-12	325	200 MA.	65	12	14.0	1%	6%	10%	80%
SC-325-200-28	325	200 MA.	65	28	32.0	1%	6%	6%	83%

- High efficiency.
- Long, trouble-free operating life.
- Compact, light-weight.
- Overload protection.
- No moving parts.
- Instant starting.
- Negligible radio interference.
- No operating maintenance.
- Operate under high shock, vibration and acceleration.

OUTPUT VOLTAGE TOLERANCE: ±5 volts.
CIRCUITRY: This unit is a solid state device including silicon rectifiers, germanium transistors, and hermetically sealed paper type condensers. There are no electrolytics used.
OPERATING AMBIENT: —55° to +75° C. Chassis temperature on which the converter is mounted not to exceed 75° C.
STORAGE AMBIENT: —55° to +95° C.
OUTPUT VOLTAGE TEMPERATURE CO-EFFICIENT: Less than —0.1 volts per °C.
PHYSICAL SPECIFICATIONS: Standard MIL-T-27, type JB case, width 3 1/16", depth 3 3/16", height 3 7/8". Hermetically sealed. Weight 3½ pounds.

OTHER UNREGULATED AND REGULATED UNITS BUILT TO ORDER
Specifications subject to change without notice

Kepco LABORATORIES, INC.
131-38 SANFORD AVENUE • FLUSHING 55, N.Y. • INDEPENDENCE 1-7000

first in Performance Reliability and Quality

Kepco

*V.R. P.S.

KR SERIES

0.1%

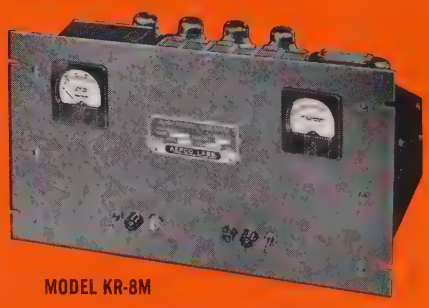
REGULATION and STABILITY

***VOLTAGE REGULATED POWER SUPPLIES**

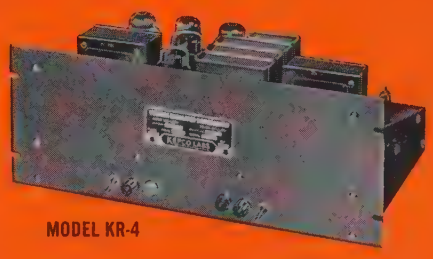
USING ADVANCED VACUUM
TUBE REGULATOR CIRCUITRY

with NEW IMPROVED FEATURES

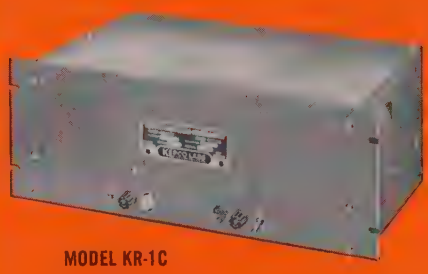
MODEL KR-16MC



MODEL KR-8M



MODEL KR-4



MODEL KR-1C

1.5 AMP. KR SERIES

MODEL	DC OUTPUT VOLTS	REGULATION* LOAD 0-MAX. %	LOAD 0-MAX. ΔV	LINE 105-125 %	LINE 105-125 ΔV	RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC	RACK MOUNT W	RACK MOUNT H	RACK MOUNT D
KR16	0-150	0.1	0.2V	0.1	0.2V	3 mv.	0.1	Each Supply	19″	12¼″	17″
KR17	100-200	0.1	0.2V	0.1	0.2V	3 mv.	0.1	has two	19″	12¼″	17″
KR18	195-325	0.06	0.2V	0.06	0.2V	3 mv.	0.1	15 Amp.	19″	12¼″	17″
KR19	295-450	0.04	0.2V	0.04	0.2V	3 mv.	0.1	Outputs	19″	12¼″	17″

600 Ma. KR SERIES

MODEL	DC OUTPUT VOLTS	REGULATION* LOAD 0-MAX. %	LOAD 0-MAX. ΔV	LINE 105-125 %	LINE 105-125 ΔV	RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC	RACK MOUNT W	RACK MOUNT H	RACK MOUNT D
KR8	0-150	0.1	0.2V	0.1	0.2V	3 mv.	0.3	Each Supply	19″	10½″	13″
KR5	100-200	0.1	0.2V	0.1	0.2V	3 mv.	0.3	has two	19″	10½″	13″
KR6	195-325	0.06	0.2V	0.06	0.2V	3 mv.	0.3	10 Amp.	19″	10½″	13″
KR7	295-450	0.04	0.2V	0.04	0.2V	3 mv.	0.3	Outputs	19″	10½″	13″

300 Ma. KR SERIES

MODEL	DC OUTPUT VOLTS	REGULATION* LOAD 0-MAX. %	LOAD 0-MAX. ΔV	LINE 105-125 %	LINE 105-125 ΔV	RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC	RACK MOUNT W	RACK MOUNT H	RACK MOUNT D
KR12	0-150	0.1	0.2V	0.1	0.2V	3 mv.	0.5	Each Supply	19″	7″	11″
KR3	100-200	0.1	0.2V	0.1	0.2V	3 mv.	0.5	has two	19″	7″	11″
KR4	195-325	0.06	0.2V	0.06	0.2V	3 mv.	0.5	5 Amp.	19″	7″	11″
KR10	295-450	0.04	0.2V	0.04	0.2V	3 mv.	0.5	Outputs	19″	7″	11″

125 Ma. KR SERIES

MODEL	DC OUTPUT VOLTS	REGULATION* LOAD 0-MAX. %	LOAD 0-MAX. ΔV	LINE 105-125 %	LINE 105-125 ΔV	RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC	RACK MOUNT W	RACK MOUNT H	RACK MOUNT D
KR11	0-150	0.1	0.2V	0.1	0.2V	3 mv.	0.9	Each Supply	19″	7″	11″
KR1	100-200	0.1	0.2V	0.1	0.2V	3 mv.	0.9	has one	19″	7″	7½″
KR2	195-325	0.06	0.2V	0.06	0.2V	3 mv.	0.9	3 Amp.	19″	7″	7½″
KR9	295-450	0.04	0.2V	0.04	0.2V	3 mv.	0.9	Output	19″	7″	7½″

FAST RECOVERY TIME
GOOD STABILITY
LOW OUTPUT IMPEDANCE

KR Power Supplies are conservatively rated and are designed for continuous duty at 50° C ambient.

REGULATION: In the output voltage range the output voltage variation is less than the figure shown in the table for line fluctuations from 105 to 125 volts and load variations from 0 to maximum current. Regulation in the % column is the % regulation at the highest output voltage. At any setting of output voltage the △V for the full line or load changes never exceeds the absolute value shown in the △V column.

RIPPLE: Less than 3 mv. RMS.

STABILITY: The output voltage variation is less than the regulation specification for a period of 8 hours.

RECOVERY TIME: Less than 50 microseconds. The excursion in the output voltage during the recovery period is less than the regulation specification.

AMBIENT OPERATING TEMPERATURE: 50°C maximum.

TEMPERATURE COEFFICIENT: Output voltage changes less than 0.01% per °C.

OUTPUT IMPEDANCE: Less than the figure in tables.

- All AC Voltages are unregulated.
- Fast recovery time, suitable for square wave pulsed loading.
- Voltage range continuously variable without switching.
- Either positive or negative may be grounded.
- Wire harness and resistor board construction.
- Power Requirements 105-125 volts, 50-65 cycles. 400 cycle units available.
- Locking type voltage control. AC, DC switches, fuses, pilot lights.
- Terminations on rear of unit.
- Oil filled condensers.
- Color Gray Hammertone.

ALL MODELS AVAILABLE (on special order)

For programmable remote voltage control.

For 400 cycle operation.

GUARANTEE ONE YEAR

ORDERING INFORMATION • KR SERIES

• Units for rack mounting without meters —use Model Nos. indicated in tables • To include 3″ meters—add M to Model No. (e.g. KR1-M) • To include cover and handles add C to Model No. (e.g. KR1-C) • To include Meters, cover and handles, add MC to Model No. (e.g. KR-1-MC)

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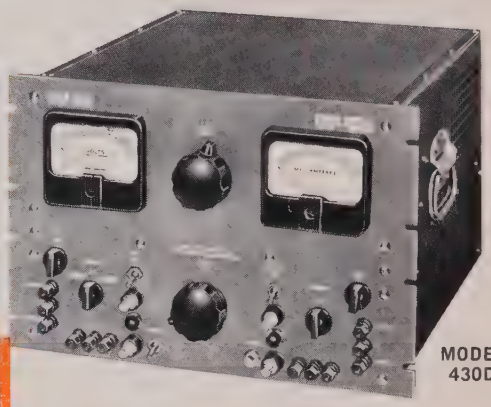
VOLTAGE REGULATED WIDE RANGE POWER SUPPLIES

USING ADVANCED VACUUM TUBE REGULATOR CIRCUITRY



MODEL 430D

MULTIPLE OUTPUT POWER SUPPLIES

REGULATION and STABILITY TO 0.01%

MODEL	DC OUTPUT VOLTS	DC OUTPUT CURRENT	REGULATION* LOAD 0-MAX. % or ΔV		LINE 105-125 % or ΔV		RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC CT	RACK MOUNT W	H	D
800B	#1 0-600	0-200 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.5	10 Amp.	19"	12¼"	17"
	#2 0-600	0-200 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.5	10 Amp.			
	Parallel 1 & 2 0-600	0-400 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.2				
	Series 1 & 2 0-1200	0-200 ma.	0.01	0.1V	0.02	0.3V	5 mv.	0.5				
510B	#1 200-500	0-200 ma.	0.02	0.2V	0.04	0.2V	3 mv.	1.0	10 Amp.	19"	12¼"	17"
	#2 200-500	0-200 ma.	0.02	0.2V	0.04	0.2V	3 mv.	1.0	10 Amp.			
	Parallel 1 & 2 200-500	0-400 ma.	0.02	0.2V	0.04	0.2V	3 mv.	0.5				
	Series 1 & 2 400-1000	0-200 ma.	0.03	0.3V	0.03	0.3V	5 mv.	1.0				
430D	#1 0-450	0-300 ma.	0.02	0.1V	0.04	0.2V	3 mv.	0.3	10 Amp.	19"	12¼"	17"
	#2 0-450	0-300 ma.	0.02	0.1V	0.04	0.2V	3 mv.	0.3	10 Amp.			
	Parallel 1 & 2 0-450	0-600 ma.	0.02	0.1V	0.04	0.2V	3 mv.	0.2				
	Series 1 & 2 0-900	0-300 ma.	0.01	0.1V	0.03	0.3V	5 mv.	0.3				
2400B	#1 0-400	0-150 ma.	0.02	0.1V	0.04	0.2V	3 mv.	0.5	10 Amp.	19"	10½"	17"
	#2 0-400	0-150 ma.	0.02	0.1V	0.04	0.2V	3 mv.	0.5	10 Amp.			
	#3 0-150 Bias	0-5 ma.	*	*	0.007	*	1 mv.	*				
	Parallel 1 & 2 0-400	0-300 ma.	0.02	0.1V	0.04	0.2V	3 mv.	0.3				
	Series 1 & 2 0-800	0-150 ma.	0.01	0.1V	0.03	0.3V	5 mv.	0.5				
103✧	#1 0-300	0-75 ma.	Unregulated				30 mv.		5 Amp.	16"	8"	8"
	#2 0-300	0-75 ma.	Unregulated				30 mv.					
	#3 -50 to +50	0-5 ma.	Unregulated				10 mv.					
	Parallel 1 & 2 0-300	0-150 ma.	Unregulated				30 mv.					

all models feature

- Fast recovery time. Suitable for square wave pulsed loading.
- Voltage Range continuously variable without switching.
- Either positive or negative may be grounded.
- Power requirements 105-125 volts, 50-65 cycles except Model 2500 which requires 60 cycles.
- Wire harness and resistor board construction.
- Terminations on front and rear of unit. Model 2500 terminations on rear only.
- Voltage controls, AC, DC switches, fuses and pilot lights on front panel.
- Color Gray Hammertone.
- Guarantee one year.

REGULATION: In the output voltage range the output voltage variation is less than the figure shown in the table for line fluctuations from 105 to 125 volts and load variations from 0 to maximum current. Regulation in the % column is the % regulation at the highest ouput voltage. At any setting of output voltage the △V for full line or load changes never exceeds the absolute value shown in the △V column.

RIPPLE: Less than the value shown in the table.

STABILITY: The output voltage variation is less than the regulation specification for a period of 8 hours.

RECOVERY TIME: Less than 50 microseconds. The excursion in the output voltage during the recovery period is less than the regulation specification for line fluctuations from 105 to 125 volts and load variations from 0 to maximum current. For Model 2000B the excursion in output voltage during the recovery time is less than 50 mv.

TEMPERATURE COEFFICIENT: Output voltage changes less than 0.01% per °C.

AMBIENT OPERATING TEMPERATURE: 50°C maximum.

OUTPUT IMPEDANCE: Less than the figure shown in tables.

***REGULATION FOR BIAS VOLTAGE:** In the range 0 to 150 volts the output voltage variation is less than 0.007% for line fluctuation from 105 to 125 volts. At 150 volts the output voltage variation is less than ½% for load variation from 0 to 5 ma. At settings below 150 volts the internal resistance of the supply will increase to a maximum of 25,000 ohms.

† All AC Voltages are unregulated.

✧These units are supplied in cabinets. The chassis, when removed from their cabinets, will mount directly into a standard 19" wide relay rack. All units are designed for relay rack mounting or bench use.

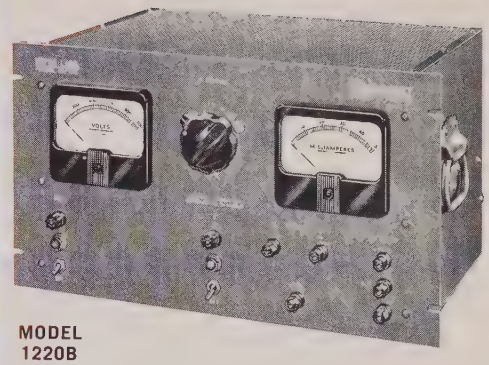
All units contain voltage and current meters except Models 103, 315B and 2500.

ALL MODELS AVAILABLE (on special order) For programmable remote voltage control. For 400 cycle operation.

REGULATION and STABILITY TO 0.004%

HIGH VOLTAGE POWER SUPPLIES

MODEL	DC OUTPUT VOLTS	DC OUTPUT CURRENT	REGULATION* LOAD 0-MAX. % or ΔV		LINE 105-125 % or ΔV		RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC CT	RACK MOUNT W	H	D
2500	0-2500	0-50 ma.	0.004	0.1V	0.008	0.2V	5 mv.	0.5		19"	12¼"	17"
1520B✧	0-1500	0-200 ma.	0.006	0.1V	0.01	0.2V	3 mv.	0.5		19"	21"	13"
1220B	0-1200	0-20 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.5	10 Amp.	19"	10½"	13"
1250B✧	0-1000	0-500 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.2		19"	26¼"	13"
1020B	0-1000	0-50 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.5	10 Amp.	19"	10½"	13"

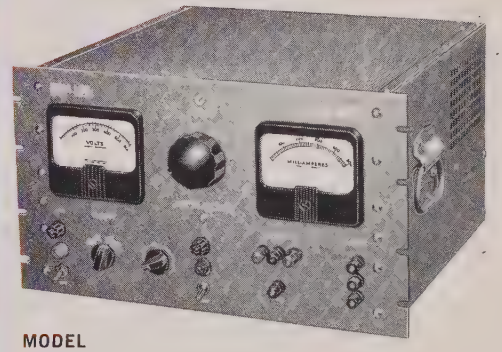


MODEL 1220B

REGULATION and STABILITY TO 0.01%

0-600 VOLT POWER SUPPLIES

MODEL	DC OUTPUT VOLTS	DC OUTPUT CURRENT	REGULATION* LOAD 0-MAX. % or ΔV		LINE 105-125 % or ΔV		RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC CT	RACK MOUNT W	H	D
780B✧	0-600	0-3 Amp.	0.01	0.1V	0.02	0.2V	3 mv.	0.03		19"	45½"	17"
770B✧	0-600	0-2.25 Amp.	0.01	0.1V	0.02	0.2V	3 mv.	0.04		19"	45½"	17"
760B✧	0-600	0-1.5 Amp.	0.01	0.1V	0.02	0.2V	3 mv.	0.06		19"	31½"	17"
750B✧	0-600	0-750 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.1		19"	26¼"	13"
605	0-600 0-150 Bias	0-500 ma. 0-5 ma.	0.01 *	0.1V *	0.02 0.007	0.2V *	3 mv. 1 mv.	0.2 *	20 Amp.	19"	10½"	17"
615B	0-600 0-150 Bias	0-300 ma. 0-5 ma.	0.01 *	0.1V *	0.02 0.007	0.2V *	3 mv. 1 mv.	0.3 *	10 Amp.	19"	10½"	13"
500RB	0-600	0-300 ma.	0.01	0.1V	0.02	0.2V	3 mv.	0.3	10 Amp.	19"	10½"	13"
815B	0-600 0-150 Bias	0-200 ma. 0-5 ma.	0.01 *	0.1V *	0.02 0.007	0.2V *	3 mv. 1 mv.	0.5 *	10 Amp.	19"	10½"	13"
245B	200-500	0-200 ma.	0.02	0.2V	0.04	0.2V	3 mv.	0.5	10 Amp.	19"	7"	7½"



MODEL 605

REGULATION and STABILITY TO 0.02%

0-400 VOLT POWER SUPPLIES

MODEL	DC OUTPUT VOLTS	DC OUTPUT CURRENT	REGULATION* LOAD 0-MAX. % or ΔV		LINE 105-125 % or ΔV		RIPPLE (RMS)	OUTPUT Z OHMS DC-100KC	6.3V† AC CT	RACK MOUNT W	H	D
400B	0-400 0-150 Bias	0-150 ma. 0-5 ma.	0.02 *	0.1V *	0.04 0.007	0.2V *	3 mv. 1 mv.	0.5 *	10 Amp.	19"	7"	11"
315B	0-400 0-150 Bias	0-150 ma. 0-5 ma.	0.02 *	0.1V *	0.04 0.007	0.2V *	3 mv. 1 mv.	0.5 *	10 Amp.	19"	7"	11"
141B	0-400	0-150 ma.	0.02	0.1V	0.04	0.2V	3 mv.	0.5	10 Amp.	19"	7"	11"
2000B	0-400	0-150 ma.	0.002	10 mv.	0.002	10 mv.	1 mv.	0.05		19"	10½"	13"
730B✧	0-350	0-3 Amp.	0.03	0.1V	0.06	0.2V	3 mv.	0.03		19"	26¼"	17"
720B✧	0-350	0-2.25 Amp.	0.03	0.1V	0.06	0.2V	3 mv.	0.04		19"	26¼"	17"
710B	0-350	0-1.5 Amp.	0.03	0.1V	0.06	0.2V	3 mv.	0.06		19"	12¼"	17"
700B	0-350	0-750 ma.	0.03	0.1V	0.06	0.2V	3 mv.	0.1		19"	10½"	13"

MODEL 400B

0.5%
REGULATION and STABILITY

first in Performance Reliability and Quality

Kepco

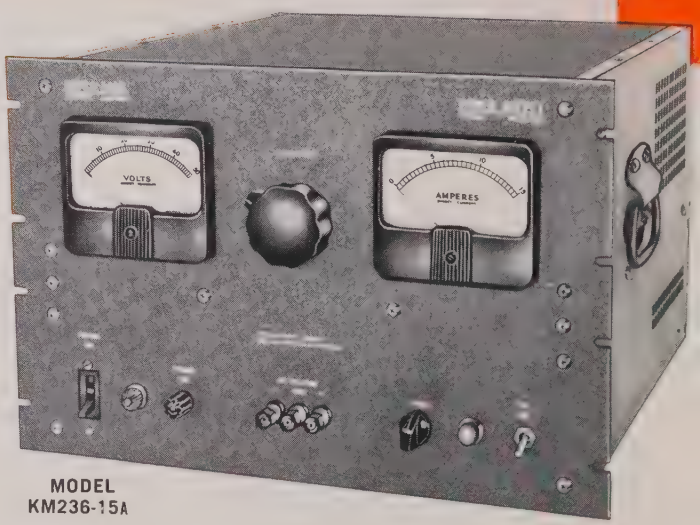
MODEL	DC OUTPUT VOLTS	DC OUTPUT CURRENT	REGULATION* LOAD 0-MAX. % or ΔV		LINE 105-125 % or ΔV		RIPPLE RMS	RACK MOUNT W	H	D
KM236-15A	0.1-36	0-15 Amp.	0.5	0.025	0.5	0.025	0.5% or 25 mv.	19″	12¼″	17″
KM236-30✧	0.1-36	0-30 Amp.	0.5	0.025	0.5	0.025	0.5% or 25 mv.	19″	26¼″	17″
KM236-50✧	0.1-36	0-50 Amp.	0.5	0.025	0.5	0.025	0.5% or 25 mv.	19″	36¾″	17″

0.1-36 VOLTS IN 15, 30 AND 50 AMP. UNITS

*Pat. Pending

featuring

- **Output voltage within 0.5% during recovery time for line transients 105-125 volts.**
- **Short circuit will not damage supply.**
- **Full current may be drawn at any voltage from 0.1-36 volts.**



MODEL KM236-15A

REGULATION: In the range 0.1-36 volts the output voltage variation is less than 0.5% or 25 millivolts for line fluctuation from 105-125 volts, and less than 0.5% or 25 millivolts for load variations from minimum to maximum current, whichever is greater.

RIPPLE VOLTAGE: Less than 0.5% or 25 millivolts RMS, (whichever is greater).

STABILITY: (for 8 hours) less than 0.5% or 25 millivolts (whichever is greaer).

TEMPERATURE COEFFICIENT: Output voltage changes less than 0.05% per °C.

AMBIENT OPERATING TEMPERATURE: 50°C maximum.

REMOTE ERROR SIGNAL SENSING is provided to maintain stated regulation directly at the load.

FUSE PROTECTION: Input fuse on front panel.

OVERLOAD PROTECTION: An automatic current limiting device allows direct shorting of the output terminals without damage to the supply.

POWER REQUIREMENTS: KM236-15A and 30 — 105-125 volts, 57-63 cycles. KM236-50 — 208V ± 10% or 230V ± 10%, 57-63 cycles, single phase.

METERS: Ammeter and Voltmeter 4½″ rectangular.

OUTPUT TERMINATIONS: DC terminals are clearly marked on the front panel, except on Model KM-236-50 where they appear on the rear only. Either positive or negative terminal of the supply may be grounded. DC terminals are isolated from the chassis. A binding post is available for connecting to the chassis. All terminals are also brought out at the rear of the chassis. Two terminals are mounted at the rear of the chassis to provide for picking up the error signal directly at the load. This connection compensates for the voltage drop in the wires connecting the power supply to the load.

CONTROLS: Power on-off switch, DC on-off switch, coarse and fine voltage controls.

OPERATIONAL CHARACTERISTICS: This regulated unit consists of a ferro-resonant line regulator followed by a magnetic amplifier regulator. The ferro-resonant line regulator furnishes well regulated transient free AC power. The high gain magnetic amplifier is used to regulate the DC output voltage to compensate for voltage changes in the power unit for varying currents. The response time for pulse loads is less than 0.2 second.

✧These units are supplied in cabinets.

magnetic tubeless voltage regulated power supplies

to operate tubes transistors • relays • solenoids filaments in electrical and electronic systems

± 1% REGULATION and STABILITY

Model	D.C. Output Volts		D.C. Output Amps.		Ripple (rms)	Rack Mount		
	Low Range	High Range	High Range	Low Range	% of Max. Voltage	W	H	D
KM-251	2-8	8-14	15.0	30.0	0.50	19″	7″	13″
KM-252	5-20	20-35	7.0	12.0	0.10	19″	7″	13″
KM-253	20-40	40-60	4.0	6.0	0.05	19″	5¼″	13″
KM-254	30-60	60-90	2.8	4.0	0.04	19″	5¼″	13″
KM-255	60-120	120-180	1.4	2.0	0.03	19″	5¼″	13″
KM-256	150-200	200-250	1.0	1.5	0.02	19″	5¼″	13″
KM-257	250-325	325-400	0.6	0.75	0.02	19″	5¼″	13″

REGULATION: Less than ± 1% for line changes from 100 to 130 volts. Control on front panel optimizes load regulation at any given output voltage.

RIPPLE: 0.1% RMS of maximum output voltage at full load. Except Model 251 which is 0.5%.

STABILITY: For eight hours less than ± 1%.

AMBIENT OPERATING TEMPERATURE: 50° C maximum.

POWER REQUIREMENTS: 100-130 volts, 60 cycles.

HIGH CONVERSION EFFICIENCY: (Watts out/ Watts in) X 100 is 75% at full load. Over 50% at 50% load.

OUTPUT TERMINATIONS. DC terminals are clearly marked on the front panel. All terminals are isolated from the chassis. Either positive or negative terminal of the DC output may be grounded. A terminal is provided for connecting to the chassis. The DC output is also brought out at the rear of the unit.

CONTROLS: Power on-off switch, high and low output range switch, DC voltage control and load regulation control are mounted on front panel.

METERS: Voltmeter and ammeter included — 2½″ wide view.

- Maximum reliability.
- Minimum maintenance.
- Negligible drift.
- No warm up time.
- Resolution good. Minimum to maximum voltage covered in two ranges including full rotation of voltage control on each range.
- Short circuit and overload protection.
- Excellent line transient response.

first in Performance Reliability and Quality

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TOWER ENGINEERING COMPANY
2138 Lee Road, Cleveland Heights 18
YEllowstone 2-6105

DALLAS 6, TEXAS
ARNOLD BARNES COMPANY
3603 Lemmon Avenue
LAkeside 6-8735

DAYTON, OHIO
TOWER ENGINEERING COMPANY
627 Salem Avenue
ORegon 9346

DENVER, COLORADO
KEPCO LABORATORIES, INC. - NEW YORK
INdependence 1-7000

DETROIT, MICHIGAN
TOWER ENGINEERING COMPANY
18450 Livernois Avenue
UNiversity 2-5370

KANSAS CITY 3, KANSAS
NORMAN W. KATHRINUS & CO.
4306 Cambridge Avenue
JOhnson 2-4108

LOS ANGELES 26, CALIFORNIA
V.T. RUPP COMPANY
307 Parkman Avenue
DUnkirk 7-8224

ORLANDO, FLORIDA
R.F. LEE ASSOCIATES
711 Magnolia Avenue
ORlando 4-2161

PHILADELPHIA, PENNSYLVANIA
EASTERN ASSOCIATES INC.
1468 York Road, Abington, Pa.
TUrner 4-7200

SAN DIEGO, CALIFORNIA
V.T. RUPP COMPANY
3150 El Cojon Blvd.
ATwater 2-0642

SAN FRANCISCO, CALIFORNIA
R.L. PFLIEGER COMPANY
1652 Laurel St., San Carlos, Cal.
LYtell 1-0396

ST. LOUIS 10, MISSOURI
NORMAN W. KATHRINUS & COMPANY
4356 Duncan Avenue
OLive 2-7005

SEATTLE 1, WASHINGTON
HARRY LEVINSON COMPANY
1117 Second Avenue, Suite 321
MAin 5317

SYRACUSE, NEW YORK
NORTHERN ASSOCIATES COMPANY
704 Allen Road, North Syracuse
GLenview 8-2358

TRUMBULL, CONNECTICUT
RAY PERRON & COMPANY, INC.
36 Louis Street
AMherst 8-9631

WASHINGTON, D.C.
S.S. LEE ASSOCIATES INC.
1107C W. Broad St., Falls Church, Va.
JEfferson 4-3500

WINSTON-SALEM, NORTH CAROLINA
S.S. LEE ASSOCIATES INC.
P.O. Box 906
PArk 2-3223

METROPOLITAN NEW YORK

Kepco LABORATORIES, INC.

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